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Danish Vestigial Case and the Acquisition of Vocabulary in Distributed Morphology

Jeffrey K. Parrott

As Halle & Marantz (2008: 71) acknowledge, “we have no real idea about how a child assigns features to Vocabulary Items” in Distributed Morphology (DM). Stated generally, how do children acquire language-specific (sometimes variable) mappings between morpho-syntactic features and their morpho-phonological exponents? Following Emonds (1986) in a DM framework, this article advances a testable ‘morphological transparency’ constraint on the acquisition of Vocabulary, and presents supporting results from a pilot observational child-language study in Danish. This constraint explains a significant difference in the mechanisms of Germanic case morphology. By hypothesis, ‘vestigial’ case forms of English and Danish pronouns are contextual allomorphs, with Vocabulary that do not contain any morpho-syntactic case features. Vestigial-case mechanisms constitute a comprehensive analysis of intra-individually variable case-form mismatches in coordinate Determiner Phrases, predicate nominals, and other syntactic structures. Thus, a principle of language acquisition ultimately explains the distribution of case forms both within and across language varieties.

Keywords: acquisition; case; Danish; Distributed Morphology; Germanic

1. Introduction

As is well known, a high degree of inter-individual (i.e. cross-linguistic) variation can be observed in the morphosyntax of case (e.g., Blake 1994, Malchukov & Spencer 2009). There is furthermore significant intra-individual (i.e. Labovian sociolinguistic) variation observed in the morphosyntax of case, which is a primary focus of this article. Considering such variation, it seems reasonable to suspect that the underlying mechanisms of case morphosyntax are largely, if not wholly, acquired on the basis of environmental input rather than determined innately by UG. This suspicion deepens upon adopting a general Minimalist

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perspective (Chomsky 1995, 2000 *et seq.*, see also Hauser *et al.* 2002), where only the operations of the narrow syntax are genetically endowed; all variation is restricted to 'lexical' features and the interfaces between narrow syntax and language-external cognitive and sensory/motor systems.

The question of case acquisition arises in an especially acute form within the theory of Distributed Morphology (DM; Halle & Marantz 1993, Embick & Noyer 2007). In the architecture of DM and related separationist theories (e.g., Beard 1995), post-syntactic objects and operations determine the morphophonological forms taken by sets of morphosyntactic features. Insofar as such morphological mechanisms are explicitly articulated, as they are in DM, it becomes possible, and in fact necessary, to formulate and test hypotheses about how they are learned by children during the process of linguistic development. This imperative strengthens if we adopt any version of more radical proposals, whereby case morphology is divorced from abstract licensing of nominal phrases in the syntax, and the features or properties realized as case are determined or valued solely in a post-syntactic morphological interface component (e.g., Marantz 2000, McFadden 2004, 2007, Sigurðsson 2006, 2009; but cf. Legate 2008 for arguments against such approaches). If such ideas are at all on the right track, then case morphosyntax must be learned. Of course, it is no small matter to discover what the relevant mechanisms are and how exactly they are acquired. Moreover, any moves toward analyzing case as a strictly morphological phenomenon raise the theoretical stakes considerably, given the central role of case in Government and Binding and Minimalist theories of syntax (see Lasnik 2008 for an overview and references).

Accordingly, we might take it as a desideratum for morphosyntactic theory that, in the words of Halle & Marantz (2008: 71), "principles of language acquisition ultimately should explain facts about the distribution of forms across the paradigms generated by the inflectional features of a language." Unfortunately, however, there has been no work on language acquisition specific to the DM framework. "In particular," as Halle & Marantz acknowledge, "we have no real idea about how a child assigns features to Vocabulary Items." In DM Vocabulary are listed 'lexical' entries that provide phonological exponents to abstract morpho-syntactic terminals. Vocabulary insertion of phonological features takes place during the post-syntactic computation to the Phonetic/Perceptual Form (PF) interface. The question is not limited to the DM theoretical framework, but can be stated generally: How exactly do children acquire an inventory of language-specific (and sometimes variable) mappings between morphosyntactic feature bundles and their morphophonological exponents?

This article takes tentative steps toward addressing the kinds of issues raised above. Following Emonds (1986) within a DM framework, I advance a specific and testable 'morphological transparency' constraint on the acquisition of Vocabulary items. Emonds (1986) gives an early, and in my view essentially correct, analysis of English pronominal case-form mismatches in coordinate Determiner Phrases (CoDPs) and other environments. (For alternative analyses, see e.g., Sobin (1994, 1997), Lasnik & Sobin (2000), Johannessen (1998), Schütze (2001), Quinn (2005), and Grano (2006).) The transparency constraint proposed below is intended to explain a significant difference in the mechanisms of Ger-

manic case morphology. As is well known (e.g., König & van der Auwera 1994, Sigurðsson 2006), languages such as German, Icelandic, and Faroese have phonologically distinctive case morphology on elements of open-class nominal phrases, as well as on closed-class pronouns. However, languages such as English, Danish, and varieties of Norwegian and Swedish, among others, have phonologically distinctive case-form allomorphs only within a closed sub-set of personal pronouns. Because morphological acquisition is constrained by transparency, by hypothesis, such ‘vestigial’ case forms of (at least) English and Danish are contextual allomorphs, with Vocabulary that do not contain any abstract morpho-syntactic case features. This difference between the mechanisms of vestigial and transparent case morphology constitutes the most comprehensive analysis to date for a heretofore puzzling instance of intra-individual variation in English (and, as predicted, in Danish): namely, pronominal case-form mis-matches in CoDPs and other syntactic structures. As desired, then, a principle of language acquisition provides the ultimate explanation for the distribution of case forms both within and across languages.

2. Emonds’s (1986) Analysis of Case Variation in English

2.1. Pronominal Case-Form Variation

English singular and plural 1st person and 3rd person pronouns have two case-form allomorphs.¹ For the most part, these case forms are in complementary distribution: One appears when the pronoun is the subject of a finite clause, and the other appears when the pronoun is a verbal (direct or indirect) or prepositional object, a subject of a non-finite clause, or in many other heterogeneous positions. These two case allomorphs are hereafter referred to as subject and oblique forms (SFs and OFs).²

(1) English pronominal case-form allomorphy

	<u>Subject form (SF)</u>	<u>Oblique form (OF)</u>
<u>1SG</u>	<i>I</i>	<i>me</i>
<u>3SG</u>	<i>she</i> (♀) / <i>he</i> (♂)	<i>her</i> (♀) / <i>him</i> (♂)
<u>1pl</u>	<i>we</i>	<i>us</i>
<u>3pl</u>	<i>they</i>	<i>them</i>

¹ 2nd person *you* and 3rd singular neuter *it* are excluded from consideration, since they do not have distinct case forms in English.

² In order to simplify exposition, I do not consider English possessive pronouns in this article. One reason for their omission is that the possessive pronoun forms express a different semantics, and accordingly their distribution is orthogonal and not complementary to the distribution of the case allomorphs. Furthermore, according to the theory developed below, the syntactio-semantic features responsible for possessive semantics — let us refer to them as [±POSSESSIVE] for short — are transparent on DPs in English. That is, [±POSS] is not only phonologically distinctive on closed-class pronouns, but on open-class DPs (e.g., [*the man with the hat*]'s beer). As we will see, this means that Vocabulary may contain [±POSS], and therefore that mismatches in CoDP are not predicted.

Emonds (1986) is among the first linguists to provide an explicit mechanistic analysis³ of phenomena known to virtually every native speaker of English: There is sociolinguistically significant variation in the distribution of case forms when pronouns occur in several heterogeneous syntactic constructions. The following constructed examples are adapted from Emonds, with his terms followed by mine in brackets when different. Emonds refers to these as “deviant prestige constructions” because the prescribed SF seems rare in speech and apparently strikes most native speakers as being marginal or even unacceptable, despite its normatively favored status. Thus, note that by ‘*’, Emonds means ‘socially prestigious but grammatically deviant’ and not necessarily ‘unattested or unacceptable’. (Similar lists are provided by Schütze (2001) and Grano (2006).)

- (2) a. *Conjoined Subjects [CoDPs]*
Mary and him/*he are late.
- b. *Predicate nominals [post-copular nominals]*⁴
It is just us/*we who John says are late.
- c. *Subjects of understood predicates [objects of comparatives]*
Students smarter than her/*she get no scholarship.
- d. *1st person demonstratives of subjects*
Us/*we commuters are often blamed for smog.
- e. *Appositives to subjects*
Judy thinks the best student, namely her/*she, should win the prize.

There are additional environments where OFs occur categorically in English (with no prescriptive attention). Below and hereafter, ‘*’ means ‘unattested or unacceptable’ as per convention.

- (3) a. *Left-dislocated subjects*
Me/*I, I truly love beer.
- b. *Isolated pronominal subjects*
Who truly loves beer? Me/*I!

Most striking among these environments are CoDPs, where variably mismatched pronominal case forms occur with salient frequency.^{5,6} The following

³ Other early but independent analyses include Schwartz (1985) and Parker (1988); see also Jespersen (1933, 1949 [1961]) for perhaps the earliest observations of this phenomenon.

⁴ For cross-linguistic discussion of predicate nominals, see Schütze (2001), Sigurðsson (2006), or Thráinsson (2007).

⁵ I would like to emphasize that I intend ‘mismatch’ as neutral term to describe the appearance of an allomorph outside of its expected distribution, in the environment of its complementary form. Thus, consider the invariant complementary distribution of English case allomorphs in examples (4)–(7) without coordination:

- (i) a. *Him is fighting.
b. *I was coming between **they**.
c. ***Him** was working.
d. *This is starting to make **I** feel bad.

⁶ As mentioned in fn. 2 above, mismatched possessive pronouns in CoDPs are not predicted

attestations are from Parrott (2007: chap. 6);⁷ CoDP constituents are indicated with brackets and mismatched pronouns with boldface font, a convention followed throughout this article.

- (4) *OF in finite-clause subject CoDP*
 - a. [**Him** and the zombie hunter] are fighting.
 - b. [The zombie hunter and **him**] are fighting.
- (5) *SF in prepositional object CoDP*
 - a. He thought I was coming between [**he** and his wife].
 - b. *He thought I was coming between [his wife and **he**].
- (6) *OF and SF in finite-clause subject CoDP*
 - a. [**Him** and I] were working at the time.
 - b. *[I and **him**] were working at the time.
- (7) *OF and SF in verbal object CoDP*
 - a. This is starting to make [him and **I**] both feel really bad.
 - b. *This is starting to make [**he** and me] both feel really bad.

Evidently, mismatched OFs are well attested in finite-clause subject CoDPs (4a); mismatched SFs are well attested in prepositional (5a) and verbal object CoDPs (7a); and CoDPs containing both a SF and an OF pronoun are well attested as both subjects and objects (6a)/(7a). A remarkable fact about this variation is that pronoun-specific linear ordering effects are observed with coordinated SF pronouns, as empirically confirmed by acceptability questionnaires (Quinn 2005), corpus studies (Grano 2006), and observational ‘specimen collection’ (Parrott 2007: chap. 6). OFs are attested and judged acceptable in

because [\pm POSS] is transparent on DP in English. Although the topic requires further study (see also Zwicky 2008), at first glance (and with help from Google), this prediction appears to be largely confirmed. Possessive morphology seems possible either on both conjuncts of a CoDP (i), or on the entire CoDP (ii), but (mostly) not otherwise (iii). Note also the ordering effect with case allomorphs is retained in a possessive CoDP (iid).

- (i)
 - a. Erik’s and my brewery
 - b. My and Erik’s brewery
- (ii)
 - a. Erik and me’s brewery [“and me’s” 34,600 Google results = 8%]
 - b. Me and Erik’s brewery
 - c. Erik and I’s brewery [“and I’s” 393,000 Google results = 91%]
 - d. *I and Erik’s brewery
- (iii)
 - a. *Erik and my brewery
 - b. *My and Erik brewery
 - c. %Erik and my’s brewery [“and my’s” = 4,470 Google results = 1%]
 - d. ?Erik’s and my’s brewery
 - e. *Erik’s and me brewery
 - f. *Erik’s and I brewery

⁷ The b-examples are constructed, in order to illustrate ordering effects.

either conjunct (4a-b). 1SG SFs are only attested and acceptable in the second conjunct (6a-b)/(7a); however, 3SG SFs are attested and acceptable only in the first conjunct (5a-b).⁸ A CoDP's syntactic structural context is apparently irrelevant to these ordering effects (see (9)–(10) and discussion immediately below). Moreover, there appears to be an implicational hierarchy such that 3SG SFs do not co-occur with 1SG OFs in CoDP (7b).

Every native speaker of English is aware of the often rather extreme normative attitudes toward case-form usage in CoDPs (for surveys of prescriptive literature see Angermeyer & Singler 2003, Grano 2006, for examples, see Honey 1995, O'Conner 1996, Garner 1998, Casagrande 2008). However, normative attitudes regarding case-forms in post-copular nominals are much milder than attitudes toward coordinated pronouns. There are two set expressions where SF pronouns are occasionally used, namely *It is I* or *This is he/she*. But otherwise, post-copular pronouns are always OFs, as illustrated in (8) below. Prescription of SFs in this environment appears to be a lost cause. According to O'Conner (1996: 10, 186), even "some of the stuffiest grammarians" accept that a speaker who uses the prescribed SF in this environment "sounds like a stuffed shirt," that is, pompous or pretentious. It seems clear that essentially categorical OFs should not be regarded as a mismatch in this environment, even though SFs are (or were) the prescribed pronoun, and as we will see below, post-copular nominals are invariantly nominative in languages like German. The a-sentences below are attested, but the b–c-sentences are constructed.

- (8) a. It really is just him....
b. *It really is just he....

When CoDPs occur as post-copular nominals, pronoun-specific ordering and implication effects are evident, just as for coordinated pronouns in any other syntactic environment. OFs can appear in either conjunct, as in ((9), cf. (4) above).

- (9) a. My time with C. and F. is strictly [me and them].
b. My time with C. and F. is strictly [them and me].

1SG SFs appear only in the second conjunct of a post-copular CoDP ((10a–b), cf. (6) above). 3SG SFs are not coordinated with 1SG OFs ((10a,c), cf. (7) above).

- (10) a. We often dream of the days when it is just [him and I].
b. *We often dream of the days when it is just [I and him].
c. *We often dream of the days when it is just [he and me].

⁸ Coordinated plural pronouns are extremely rare, probably for pragmatic reasons, so nothing will be concluded about them here. The few attestations in my collection all have OFs in the second conjunct (Parrott 2007, 2008).

(i) a. [Her brothers and **them**] was standing over there.
b. [Bush and **them**] spend more money in one week in Iraq than it would take to fix up all our homes.

For what it is worth, my intuition is that coordinated SFs sound extremely marginal in either conjunct, and would only be used in writing.

For reasons of space, and in view of the pilot-study results to follow below, subsequent discussion is limited to CoDPs and post-copular nominals. For more details about the other constructions, see the literature cited above and Parrott (2007: chap. 6).

2.2. *Emonds (1986) à la DM*

The core of Emonds's (1986) analysis, updated into modern theoretical terminology, is that English pronominal allomorphy does not involve abstract case features at all. Instead, SF and OF pronouns are contextual allomorphs: They are exponents of a pronoun's structural context, but not exponents of a pronoun's case features. The morphology of vestigial-case pronouns is presented informally below.

- (11) a. SF exponent when a pronoun is the subject of a finite clause
 b. OF exponent when a pronoun is in any other structural context.

Emonds's analysis merely states that the morphology of English pronouns does not refer to case features. The analysis does not entail any position on whether abstract case features are checked/assigned in the narrow syntax (e.g., Chomsky 2000 *et seq.*, Adger 2003, Hornstein *et al.* 2005) or determined in a post-syntactic morphological component (Marantz 2000, McFadden 2004, Sigurðsson 2009). Although it is consistent with the standard view that all English DPs have unpronounced syntactic Case features, the present approach is also consistent with a more radical morphological analysis whereby English lacks abstract case features altogether. The matter cannot be settled here, but remains in the background. I return to the question briefly in the conclusion.

Implemented in a DM framework, the analysis holds that English pronominal Vocabulary do not contain any case features whatsoever. Vocabulary are listed lexical items that formally resemble generative phonological rules (e.g., Chomsky & Halle 1968). Each Vocabulary item contains a set of phonological features (inside phonemic slash brackets on the right side of the double arrow) that are post-syntactically inserted into a terminal node identified by an underspecified set of morphosyntactic features (inside square brackets on the left side of the double arrow). Vocabulary may also include information (following a slash on the right side of the double arrow) that specifies a structural or other context where the target terminal must appear in order to receive exponence. Because more than one item may be inserted in the same terminal, Vocabulary must 'compete' for insertion according to the Elsewhere condition (Kiparsky 1977, Halle & Marantz 1993, Halle 1997). Thus, the Vocabulary item with the most highly specified features is inserted first, less-specified items later, and the least specified last, by default.

The schematic Vocabulary for English pronouns in (12) state that the phonological features of a SF exponent are inserted into a terminal containing a categoral determiner feature (D) and person/number agreement features⁹ (φ)

⁹ Following Halle (1997) among others, the φ features adopted here are [\pm AUTHOR], [\pm PARTICI-

— that is, a pronoun — whenever the target D terminal is itself the specifier of finite Tense ($T[\pm\text{PAST}]$). The OF is an elsewhere exponent, inserted by default when the target D terminal occurs in any other structural context.¹⁰

- (12) $[D, \varphi] \Leftrightarrow /SF/ \quad / [_{TP} __ [T[\pm\text{PAST}] \dots]]$
 $[D, \varphi] \Leftrightarrow /OF/ \quad \text{elsewhere}$

The Vocabulary for English 1SG and 3SG pronouns are given in (13)–(14):

- (13) $[D, +\text{AUTH}, +\text{PART}, -\text{PL}] \Leftrightarrow /ai/ \quad / [_{TP} __ [T[\pm\text{PAST}] \dots]]$
 $[D, +\text{AUTH}, +\text{PART}, -\text{PL}] \Leftrightarrow /mi/ \quad \text{elsewhere}$
- (14) $[D, -\text{AUTH}, -\text{PART}, -\text{PL}, \text{♂}] \Leftrightarrow /hi/ \quad / [_{TP} __ [T[\pm\text{PAST}] \dots]]$
 $[D, -\text{AUTH}, -\text{PART}, -\text{PL}, \text{♂}] \Leftrightarrow /him/ \quad \text{elsewhere}$
 $[D, -\text{AUTH}, -\text{PART}, -\text{PL}, \text{♀}] \Leftrightarrow /ʃi/ \quad / [_{TP} __ [T[\pm\text{PAST}] \dots]]$
 $[D, -\text{AUTH}, -\text{PART}, -\text{PL}, \text{♀}] \Leftrightarrow /həɪ/ \quad \text{elsewhere}$

This analysis explains why (variably mismatched) OF pronouns are attested in such diverse syntactic structures (examples (2)–(3) above), whose only common property is not being the specifier of finite T. Pronouns in any of these constructions cannot receive SF exponence, so only elsewhere OFs can be inserted.

2.3. Case-Form Variation in CoDPs

What about CoDPs? These are certainly the most crucial structures to explain. It is not at all obvious why coordination should be a default environment on a standard theory of abstract syntactic Case (cf. Schütze 2001). Why should coordination interfere with Case-feature checking/assignment (cf. Parker *et al.* 1988, Johannessen 1998)? Indeed, case mismatches inside CoDPs appear to be completely unattested and unacceptable in languages with ‘rich’ morphological case, as we will see immediately below for German. If there is in fact some special

PAST], and $[\pm\text{PLURAL}]$, where 1st person = $[+\text{AUTH}, +\text{PART}]$, 2nd person = $[-\text{AUTH}, +\text{PART}]$, and 3rd person = $[-\text{AUTH}, -\text{PART}]$. See also Nevins (2007b, 2007a) and Nevins & Parrott (in press) for more discussion of φ features.

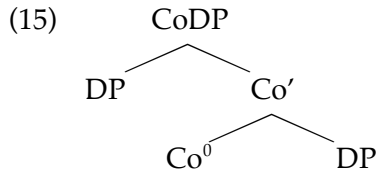
¹⁰ Again, possessive pronouns are excluded for simplicity’s sake (see fnn. 2 and 6 above). As mentioned, the feature(s) $[\pm\text{POSS}]$ is transparent by hypothesis, and therefore may be contained in Vocabulary. As a first approximation then, let us assume that a more complete set of Vocabulary for English $[D, \varphi]$ includes something like the item schematized in (ia), with a 1SG example given in (ib):

- (i) a. $[D, \varphi, +\text{POSS}] \Leftrightarrow / \text{possessive form} /$
b. $[D, +\text{AUTH}, +\text{PART}, -\text{PL}, +\text{POSS}] \Leftrightarrow / \text{mai} /$

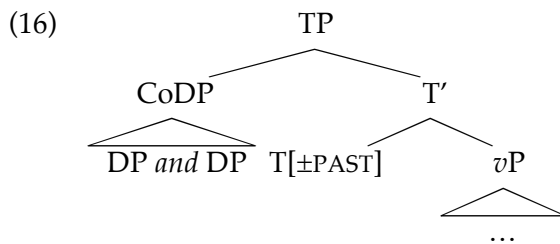
Note that because the possessive Vocabulary sketched in (i) contain a $[\text{POSS}]$ feature, they will not compete for insertion with the case-form Vocabulary given in (12)–(13), which lack any $[\pm\text{POSS}]$ feature (Halle 1997). Of course, I have not attempted to address the distribution of so-called ‘weak/strong’ (Quirk & Greenbaum 1973) possessive pronoun forms (i.e. *my/mine, your/yours, her/hers, our/ours, their/theirs*).

property of coordination that causes interference, and if the syntactic mechanisms of Case are the same in both languages, then why should case-form mismatches be possible in English CoDPs but impossible in German CoDPs?

Following Munn (1994) and Johannessen (1998), the phrase structure of CoDP is now relatively uncontroversial (but see Goodall 1987 for an alternative analysis).



Notice that a pronoun inside of a CoDP is either the specifier or the complement of the coordinate head (Co⁰). It follows that pronouns inside of a CoDP cannot themselves be the specifier of T[±PAST]: Only the CoDP itself can be the specifier of T[±PAST]. A CoDP subject of finite T is diagrammed below.



Therefore, on the present analysis of English case-forms as contextual allomorphs, pronouns in either conjunct of a CoDPs (examples (2a)/(4a)/(6a)/(7a)) receive elsewhere OF exponence for the same reason as post-copular pronouns (2b)/(5), pronoun objects of comparatives (2c), 1st person demonstrative pronouns (2d), appositive pronouns (2e), left-dislocated pronouns (3a–b), and isolated pronouns (3c–d). Simply put, none of these pronouns are the specifier of finite T.

Of course, any analysis of English case must also be able to account for the variable occurrence of (mismatched) SF pronouns in CoDPs (examples (5a)/(6a)/(7a)/(10a) above). Emonds (1986: 115–116) states that these are produced by ‘ad hoc local transformations,’ but does not go into detail about the mechanisms involved. Thus, I have introduced a novel element to Emonds’s analysis by proposing that individuals may (but need not) learn ‘supplemental’ Vocabulary items in response to normative pressures. English supplemental pronoun Vocabulary insert a specific SF exponent only when the target D terminal is linearly adjacent to the CoDP head (indicated in the diagrams below with ‘*’ following Embick 2007). Supplemental Vocabulary items for 1SG and 3SG pronouns are given below.

- (17)
- | | | | | | |
|----|---------------------------|---|------|---|--|
| a. | [D, +AUTH, +PART, –PL] | ⇔ | /ai/ | / | [CoDP ... [Co ⁰] * _ ...] |
| b. | [D, –AUTH, –PART, –PL, ♀] | ⇔ | /ʃi/ | / | [CoDP ... _ * [Co ⁰] ...] |
| c. | [D, –AUTH, –PART, –PL, ♂] | ⇔ | /hi/ | / | [CoDP ... _ * [Co ⁰] ...] |

Normative pressure is the most plausible reason that linear adjacency is part of the contextual information contained in supplemental Vocabulary. As most native speakers of English will recall, explicit instruction during elementary education prescribes that it is polite to put oneself ‘last’ — in other words, a 1SG pronoun must be the final conjunct in a CoDP (see Angermeyer & Singler 2003). In fact, most English speakers are not taught to use SFs in finite-subject CoDPs, but rather just to say *and I*.¹¹ Even if an individual is not herself the recipient of instruction, she will still be frequently exposed to this socially salient variant (see Grano 2006 for discussion of the relationship between frequency, salience, and prescription).

An individual whose Vocabulary inventory includes (17a), but contains no other supplementary Vocabulary items, will be able to produce ‘mixed’ OF/SF CoDPs (as in (6a)/(7a)/(10a)). Such a Vocabulary inventory is diagrammed in (18) below. The dotted/dashed line indicates that supplemental Vocabulary items do not compete for insertion. This is due to the Elsewhere condition mentioned above: The supplemental Vocabulary in (17) contain exactly the same amount of features and contextual information as the ordinary Vocabulary for SF pronouns in (13)–(14). Such non-competition between Vocabulary items is one of the hypothesized mechanisms of intra-individual variation, though not the only mechanism (e.g., Adger & Smith 2005, Adger 2006, 2007, and Nevins & Parrott, in press). Consequently, an individual with the pronominal Vocabulary inventory in (18) can variably produce *him and I*, *him and me*, or *me and him*, but not **he and I*, **he and me*, **I and him*, or **me and he*.

(18) [D, +AUTH, +PART, -PL]	↔	/ai/	/	[_{CoDP} ... [Co ⁰] * __ ...]
<hr/>				
[D, +AUTH, +PART, -PL]	↔	/ai/	/	[_{TP} __ [T[±PAST] ...]]
[D, +AUTH, +PART, -PL]	↔	/mi/		<i>elsewhere</i>
<hr/>				
[D, -AUTH, -PART, -PL, ♂]	↔	/hi/	/	[_{TP} __ [T[±PAST] ...]]
[D, -AUTH, -PART, -PL, ♂]	↔	/him/		<i>elsewhere</i>
[D, -AUTH, -PART, -PL, ♀]	↔	/ʃi/	/	[_{TP} __ [T[±PAST] ...]]
[D, -AUTH, -PART, -PL, ♀]	↔	/həɪ/		<i>elsewhere</i>

Although other individual inventories are possible on this theory, supplemental Vocabulary for 1SG pronouns are apparently much more common than supplemental Vocabulary for 3SG among English speaking populations.¹² The implication mentioned above (3SG SFs in CoDPs → 1SG SFs in CoDPs) has a social explanation. If an individual is sufficiently motivated by prescription to learn supplemental Vocabulary for 3SG pronouns, she will have also learned the

¹¹ See Quattlebaum (1994) for an interesting experiment with pedagogical methods and pronoun usage in CoDPs.

¹² The large majority of English speakers appear not to learn supplemental Vocabulary for plural pronouns; see fn. 8 above. It seems likely that those who do have also learned supplemental Vocabulary for 1SG and 3SG. Thus, we can make another implicational prediction: Individuals who have supplemental Vocabulary for plural pronouns will also have supplemental Vocabulary for both 3rd and 1st singular pronouns (1/3PL SFs in CoDPs → 3SG SFs in CoDPs → 1SG SFs in CoDPs). See Parrott (2007: chap. 6) for some elaboration.

supplemental Vocabulary for 1SG pronouns.

Further elaboration of the present analysis would exceed the scope of this article (for additional details see references cited above and Parrott 2007: chap. 6).

3. Transparent and Vestigial Case

The previous section outlined Emonds's (1986) analysis of English pronominal case as implemented in DM. We now proceed to take a cross-linguistic perspective. Are pronominal case-form mismatches in CoDPs attested in other languages, or is this an English-specific anomaly?

3.1. German CoDPs

Emonds specifically predicts that CoDP case variation will be unattested in German. And in fact, numerous native speakers of German, both linguists and 'civilians,' have informed me that case mismatches inside CoDPs are not only unattested but completely unacceptable. This is illustrated for nominative/accusative phrasal and pronominal CoDPs in (19)–(22), using masculine-gender nouns because these have distinct case forms.¹³ Conjoint ordering permutations show that this factor is irrelevant to the unacceptability of case mismatch in German, unlike in English.

(19) German nominative CoDPs

- a. ***[Den Mann und der Hund]** haben die Katze gebissen.
the.ACC man and the.NOM dog have the.ACC cat bitten
- b. ***[Der Mann und den Hund]** haben die Katze gebissen.
the.NOM man and the.ACC dog have the.ACC cat bitten
 'The man and the dog bit the cat.'

(20) German accusative CoDPs

- a. *Die Katze hat **[der Mann und den Hund]** gebissen.
the.NOM cat has the.NOM man and the.ACC dog bitten
- b. *Die Katze hat [den Mann und **der Hund]** gebissen.
the.NOM cat has the.ACC man and the.NOM dog bitten
 'The cat bit the man and the dog.'

(21) German nominative CoDPs (pronouns)

- a. ***[Mich und Stefan]** haben Bier getrunken.
me.ACC and Stefan have beer drunk
- b. ***[Stefan und mich]** haben Bier getrunken.
Stefan and me.ACC have beer drunk.
 'Me and Stefan/Stefan and me drank beer.'

¹³ Using masculine nouns allows us to abstract away from gender/case syncretisms in modern German, which are not numerous enough to reduce the transparency of case below the threshold necessary for acquisition. This situation could change over time, or in independently developing varieties of German, if the number of syncretisms increases sufficiently.

(22) *German accusative CoDPs (pronouns)*

- a. *Die Polizei hat [Stefan und **ich**] verhaftet.
the.NOM police has Stefan and I.NOM arrested
- b. *Die Polizei hat [**ich** and Stefan] verhaftet.
the.NOM police has I.NOM and Stefan arrested
 'The police arrested Stefan and I/I and Stefan.'

(23) illustrates that post-copular nominals, whether full DPs or pronouns, occur with invariant nominative case in German. This shows German to be unlike English, where post-copular pronouns always occur as OFs, notwithstanding a very slight remnant of prescriptively induced variation, as mentioned above.

(23) *German post-copular nominals*

- a. Das ist der Hund.
that is the.NOM dog
- b. *Das ist **den** Hund
that is the.ACC dog
 'That is the dog.'
- c. Das bin ich.
that am I.NOM
- d. *Das bin **mich**.
that am me.ACC
 'That/it is me.'

3.2. *Transparent Case in German and Beyond*

If we accept the standard premise that mechanisms of case are the same in both languages, even granting special properties to coordination, it is not clear why variable mismatches in CoDPs are impossible in German but well attested in English. Of course, there is another obvious difference between these two languages. In German, phonologically distinctive case morphology (syncretisms notwithstanding, see fn. 13) appears not only on closed-class pronouns but on various elements that constitute open-class DPs. These elements include, *inter alia*, definite articles and pre-nominal adjectives. Nominative and accusative cases are exemplified below on masculine-gender DPs (24) and pronouns (25).

(24) *German masculine DPs*

- a. Der knurrende Hund hat den Mann gebissen.
the.NOM snarling.NOM dog has the.ACC man bitten
 'The snarling dog bit the man.'
- b. Der Mann hat den zitternden Hund gebissen.
the.NOM man has the.ACC trembling.ACC dog bitten
 'The man bit the trembling dog.'

(25) *German masculine pronouns*

Er hat ihn gebissen.
he.NOM has him.ACC bitten
 'He bit him.'

Henceforth, I refer to German as having 'transparent' case, adopting Emonds's terminology in anticipation of the acquisition principle discussed in the next section. Case morphology can be called transparent if it is phonologically distinctive on relevant open-class categories, hence productive in the sense that all new nominals will have to express case. Transparent-case languages would thus include Icelandic and Faroese in the Germanic family,¹⁴ as well as Greek, Czech, and other languages in various families.

Recall that on the present analysis, English pronominal case forms are allomorphs of contextual structure, with Vocabulary that do not contain any case features. Well-attested and otherwise mysterious variable mismatches in CoDPs, along with variation or default OFs in other structures like post-copular nominals, constitute strong evidence for the analysis. It is exactly this kind of variation that is unattested in German. Thus, we might draw the perhaps unsurprising conclusion that transparent case morphology, in German and relevantly similar languages, is in fact the exponence of (morpho)syntactic case features. Again, it is not necessary to take any position on whether these case features are checked/assigned in the narrow syntax, or determined in a post-syntactic morphological component as advocated by McFadden (2004) among others.

For concreteness, let us adopt the following case features for German (adapted from McFadden 2004, where they are assigned by post-syntactic morphological rules).

(26) *Case features of German*

- | | | |
|----|---|--------------|
| a. | [+CASE, +GENITIVE, +OBLIQUE, +INFERIOR] | = Genitive |
| b. | [+CASE, +OBLIQUE, +INFERIOR] | = Dative |
| c. | [+CASE, +INFERIOR] | = Accusative |
| d. | [+CASE] | = Nominative |

These case features are contained in Vocabulary that provide exponence both to German masculine singular definite articles (27) and pronouns (28) (adapted from McFadden 2004: 221-223).

¹⁴ The endangered variety Oevdalian, which is spoken by approximately 3000 people in one province of central Sweden, may have, or have had, case on open-class DPs (Sapir 2005, Dahl & Koptjevskaja-Tamm 2006, Svenonius 2008). Evidently, however, transparent case is dying or dead in the modern language (Piotr Garbacz, p.c.). Further research is underway to address this and other questions about case in Oevdalian.

(27) *German Vocabulary for D[+definite], masculine singular*

[+CASE, +GENITIVE, +OBLIQUE, +INFERIOR, -FEM]	⇔	/des/
[+CASE, +OBLIQUE, +INFERIOR, -FEM]	⇔	/dem/
[+CASE, +INFERIOR, -FEM, -NEUT]	⇔	/den/
[+CASE, -FEM, -NEUT]	⇔	/dɛɪ/

(28) *German Vocabulary for pronominal D, masculine 3rd person singular*

[+CASE, +OBLIQUE, +INFERIOR, -FEM, -AUTH, -PART, -PL]	⇔	/im/
[+CASE, +INFERIOR, -FEM, -NEUT, -AUTH, -PART, -PL]	⇔	/in/
[+CASE, -FEM, -NEUT, -AUTH, -PART, -PL]	⇔	/ɛɪ/

English pronominal case-form allomorphs are the exponent of structural context; for that reason, mismatches occur in structures such as CoDP. German case forms are the exponent of (morpho)syntactic case features; these case features are checked/assigned normally inside CoDP and thus mismatches do not occur. In other words, it is not that underlying mechanisms of case are the same in German and English, but special case-interfering properties of coordination are parametrically different. Rather, it is the other way around. Coordination is the same in both languages, but the mechanisms that produce morphological case are significantly different. Predictions based on German can be extended to all other transparent-case languages, where mismatched case forms in CoDPs should be completely unattested. This prediction appears to be robustly supported. For Icelandic and Faroese, there are no reports of such variation in the literature (e.g., Thráinsson 2007, Thráinsson *et al.* 2004). Several linguists who are native speakers of Icelandic have confirmed for me that case mismatch in CoDPs is impossible. Fieldwork with non-linguist native speakers in the Faroe Islands provides further corroboration (Parrott to appear).

Before proceeding, it should be emphasized that although it does not occur in CoDPs and the other syntactic environments relevant for English (and Danish, below), intra-individual case variation is in fact observed in transparent-case languages. Two types are well known. The first is variation between dative and accusative case on objects of certain prepositions. The second is variation in the case of non-nominative finite-clause subjects of certain (typically experiencer or similarly themed) verbs. In Icelandic, the latter type is quite common and is associated with normative attitudes. Because it involves dative case on subjects of verbs for which other cases are prescribed, this variation is popularly known as 'dative sickness' (see, e.g., Jónsson & Eythorsson 2005, Thráinsson 2007: 224).¹⁵ Non-nominative finite-clause subjects are simply impossible with experiencer or any other verbs in modern English (and Danish, below). These facts constitute further support for the theory being argued for in this article. If mechanisms of case are the same in German (or Icelandic, etc.) and English (or Danish, etc.) then why could there not be variation in CoDPs in the former, or OF finite-clause subjects in the latter? Further consideration of case variation in transparent-case languages would take us too far afield; for more discussion see references cited.

¹⁵ Linguists may prefer the somewhat more neutral term 'dative substitution'.

3.3. Vestigial Case in Danish

English used to be a transparent-case language like German *et al.* (van Kemenade 1994). However, independent phonological changes ‘erased’ case morphology on open-class nominal phrases in English (Allen 1995, Quinn 2005). The only case-like remnants left behind were suppletive allomorphs within a closed subset of pronouns. The present analysis of English holds that pronominal allomorphs are the exponence of syntactic structural context and that their Vocabulary do not include any case features. Hereafter, this state of morphological affairs will be referred to as ‘vestigial’ case. Typologically speaking, of course, English is not the only Germanic vestigial-case language. In addition to Dutch, Afrikaans, and Frisian (König & van der Auwera 1994), we find the so-called ‘mainland Scandinavian’ varieties, comprising Norwegian, Swedish, and the focus of this article, Danish. All of these languages have pronominal case-form allomorphs but lack case morphology on open-class nominal phrases.¹⁶

Above, it was predicted that CoDP case variation will be unattested in transparent-case languages like German. A converse prediction is that pronominal case-form mismatches in CoDPs, and perhaps additional environments, will be attested in vestigial-case languages other than English. This prediction is robustly supported for Danish, whose pronominal case-form allomorphs are given in (29) below.¹⁷ Danish has distinctive case forms for 2nd person pronouns in both singular and plural (but like English, there is no distinction for 3^{SG} *det/den* ‘it’).¹⁸

(29) *Danish pronominal case-form allomorphy*

	<u>Subject Form (SF)</u>	<u>Oblique Form (OF)</u>
<u>1SG</u>	<i>jeg</i>	<i>mig</i>
<u>2SG</u>	<i>du</i>	<i>dig</i>
<u>3SG</u>	<i>hun</i> (♀) / <i>han</i> (♂)	<i>hende</i> (♀) / <i>ham</i> (♂)
<u>1pl</u>	<i>vi</i>	<i>os</i>
<u>2pl</u>	<i>I</i>	<i>jer</i>
<u>3pl</u>	<i>de</i>	<i>dem</i>

Pronominal case-form variation in CoDPs and other structures is salient to

¹⁶ Yiddish has lost most (but perhaps not all) traces of case on nominal phrases, but retains dative pronouns (König & van der Auwera 1994), as do certain varieties of Swedish and Norwegian (Jørgensen 2000). The status of such dative-retaining vestigial-case languages is an open and intriguing research question on the current approach.

¹⁷ As above for English (see fnn. 2, 6, and 10), I do not discuss Danish possessive pronouns here. Interestingly, Danish also has a possessive DP clitic *-s*.

¹⁸ Danish has a transparent 2-gender system with agreement on articles and both pre-nominal and predicate adjectives. Masculine and feminine have been syncretized to a common gender, which contrasts with a neutral gender. There are some Danish varieties that still maintain a three-gender system, but these may be in decline because of dialect leveling to the Copenhagen ‘standard’. *Det* is the neutral form of the 3^{SG} pronoun ‘it’ and *den* is the common-gender form, but their distribution differs in other ways (Allan *et al.* 1995: 154f., 157–160). As in English, the other 3^{SG} pronouns (*hun/hende* and *han/ham*) refer to semantic (biological sex of humans) rather than grammatical gender.

native speakers, and has been pointed out by Danish scholars (Jørgensen 2000, Hansen & Heltoft 2007, Pedersen 2008). Despite remarkably exact parallels to English, however, case variation in Danish has not been discussed or analyzed in the linguistic literature to my knowledge. One very concise exception is Allan *et al.*'s grammar of Danish, which reports the following (1995: 145):

In colloquial language, the objective form *mig* is sometimes used as subject [...]. This happens mostly in coordination with a noun phrase, irrespective of the order of the two (or more) coordinated elements, though it is felt to be even more informal when the personal pronoun appears in first place [...].

(30) *Adapted from Allan et al. (1995: 145)*

- a. [Min bror og **mig**] er gode venner. Danish
my brother and me.OF are good friends
- b. [**Mig** og min bror] er gode venner.
me.OF and my brother are good friends

We can infer the existence of intra-individual variation from normative attitudes. After all, it not possible to prescribe against forms that are never used. The following examples of mismatch in CoDPs (31) are adapted from Hansen (1988), in the section titled “*They or them, she or her?*” Such examples are taken as representative, among many other similar examples from the Danish prescriptive literature (e.g., Oxenvad 1976).

- (31) a. Kun [min sekretær og **mig**] kender adressen. Danish
only my secretary and me know address.DEF
- b. Adressen kendes kun af [min sekretær og **jeg**].
address.DEF known.PASS only by my secretary and I

As predicted — both by the present theory, and by inference from prescriptive literature — pronominal case-form mismatches in CoDPs appear to be very well attested in both written and spoken Danish. (32) is attested from an email,¹⁹ and is comparable to English (4) above.

- (32) *OFs in finite-clause subject CoDP* Danish
 ... [**mig** og **dig** og F.] går ind i det nye udvalg.
me and you.OF and F. go into in the new committee

The attestations in (33) were collected from a corpus of written Danish,²⁰ and are comparable to English (5a) and (7a), respectively.

- (33) *SFs in prepositional and verbal object CoDPs* Danish
 a. Enterapi med [hende og **jeg**] ville have været
a therapy with her and I would have been

¹⁹ Thanks to Inge Lise Pedersen for providing this one.

²⁰ From ‘Korpus 2000’ (<http://korpus.dsl.dk>), by the Danish Language and Literature Society (Det Danske Sprog- og Litteraturselskab), an institution under the Danish Ministry of Culture. Collected with Jacob Thøgersen.

- b. ... (at,) jeg ikke er ked af, at det ikke blev [ham og jeg].
 that I not am sad of INF it not become him and I
 '... (that) I am not sad (we didn't become a couple).'

(34) was spoken aloud.²¹ Note that the coordinate head is *eller* 'or' rather than *og* 'and'. This fact supports the theoretical claim (made in section 2.3 above) that supplemental Vocabulary refer to the coordinate head itself, and not to the phonological or other features that specifically distinguish *and/og* from *or/eller*.

(34) *SF in prepositional object CoDP* Danish

De problemer kan løses af [L. eller jeg].
 they problems can solved.PASS by L. or I

The attestations in (35) were all spoken aloud by adults and recorded as part of the pilot child-language study to be discussed in the next section.²² (35a–b) are comparable to English (4) above, and (35c) to (6a).

(35) *OFs (and SF) in finite-clause subject CoDPs* Danish

- a. ... [far og mig] blev gift.
 father and me got married
- b. ... at [dig og far] ligner hinanden lidt.
 that you.OF and father look-like each-other little
- c. [Ham og jeg] var faktisk sammen.
 him and I were in-fact together

There also appear to be pronoun-specific ordering and implication effects in Danish, similar to those observed in English. While OFs appear in either conjunct (compare (32) and (35a–b) above), *jeg* seems to be restricted to the second conjunct, regardless of whether the CoDP is a subject or object, as illustrated in (36).

- (36) a. * [Jeg og ham] var faktisk sammen. Danish
 b. * En terapi med [jeg og hende] ...

Moreover, a 3SG SF is apparently not acceptable with a 1SG OF in either subject or object CoDPs, as illustrated in (37).

- (37) a. * [Han og mig] var faktisk sammen. Danish
 b. * En terapi med [hun og mig] ...

Preliminary consultation with native speakers confirms the unacceptability of (36–37), but should be corroborated with empirical studies utilizing questionnaires and/or interviews to elicit reliable 'acceptability reactions' (Schütze 1996)

²¹ Uttered by a student at the University of Copenhagen; overheard and documented by Jacob Thøgersen.

²² Transcribed by René Staustруп.

to these and other constructions.²³

There do not appear to be normative attitudes regarding post-copular nominals in Danish, and pronouns in this environment are categorically OFs. The attestations in (38) were spoken by adults in the same recording mentioned directly above, and are comparable to English (8-10).

- (38) a. Det er J., det er dig og det er mig. *Danish*
 it is J. it is you.OF and it is me
 b. Det er [K. og dig].
 it is K. and you.OF
 c. Det er [dig og K. og C.]
 it is you.OF and K. and C.
 d. Det er også [dig og S.] der kører.
 it is also you.OF and S. there driving

SFs as post-copular nominals are unacceptable and unattested, probably due to the lack of prescription for this environment.

- (39) *Det er du og det er jeg. *Danish*

Danish looks remarkably similar to English with respect to variation and the distribution of case-forms in syntactic structures such as CoDP and post-copular nominals.²⁴ We can conclude, then, that the morphological mechanisms for case forms of Danish pronouns are the same as in English — that is, the pronoun Vocabulary do not contain any case features. Danish pronominal case forms are allomorphs of structural context: SFs are inserted when a pronoun is the specifier of finite T, and OFs are elsewhere items inserted in all other structural contexts (see (11) and (12) above). For concreteness, Vocabulary for Danish 1SG and 2SG pronouns are given in (40)–(41); Vocabulary for the other pronouns follows the same schema.

- (40) [D, +AUTH, +PART, –PL] ⇔ /jai/ / [TP __ [T[±PAST] ...]]
 [D, +AUTH, +PART, –PL] ⇔ /mai/ elsewhere
 (41) [D, –AUTH, +PART, –PL] ⇔ /du/ / [TP __ [T[±PAST] ...]]
 [D, –AUTH, +PART, –PL] ⇔ /dai/ elsewhere

²³ On the present analysis, we also might expect to find variably mismatched pronouns in CoDPs and other structures when Danes are speaking English. And indeed, I have overheard the following attestation:

(i) Him and I played Hendrix together.

²⁴ Pedersen (2008) states that for certain Danish varieties, for example those spoken in southern Jutland and the island of Bornholm, ‘nominative is dominant’ in subject CoDPs, post-copular pronouns, and the other relevant structures. Pedersen attributes this to the influence of Swedish (see below), especially for Bornholm. However, she concedes that such SF usage is characteristic of ‘older’ varieties. Further empirical research is necessary in order to determine what the current situation is and whether there is any change in progress that might be observable in apparent time (e.g., Bailey 2002).

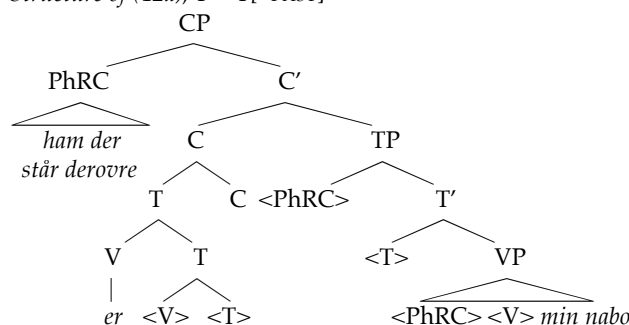
Danish pronoun-headed relative clauses (PhRCs) offer additional support for the present analysis. PhRCs are rarely used in modern spoken English, with the exception of a few set expressions (e.g., *He who must not be named* from the Harry Potter book and film series). But pronominal case-form variation in this construction is known to Danish scholars (Jørgensen 2000, Hansen & Heltoft 2007, Pedersen 2008) and appears to be a chief concern in the prescriptive literature, as exemplified in (40) with constructed examples modified from Hansen (1988). Below, the relative clause is bracketed and the mismatched pronoun is in bold.

- (42) a. *OF in finite-clause subject PhRC*
 [**Ham**, der står derovre], er min nabo.
him who stands there-over is my neighbor
- b. *SF in prepositional object PhRC*
 Blandt [**de**, der hjalp familien], var især naboerne.
among they who help family.DEF were especially neighbors.DEF

Case-form variation in this construction is predicted directly by the theory under discussion. A pronoun heading a relative clause is embedded in a DP structure, so it cannot receive SF exponence and an elsewhere OF will be inserted by default (42a).²⁵ Supplemental Vocabulary, learned in response to normative

²⁵ Danish is a matrix V2 language, but a full consideration of the issues raised thereby would take us far beyond the scope of this article. Very briefly, consider (43) in its complete sentential context (i). Following standard analyses, the PhRC DP has raised to the specifier of CP from its Merged position inside VP, with an intermediate stop in the spec of TP to satisfy EPP; copies left by phrasal movement are indicated below with angled brackets (Chomsky 1995, 2000 *et seq.*, Hornstein 2001).

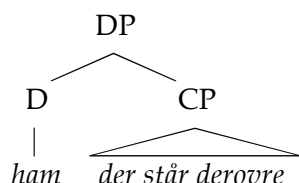
(i) *Structure of (42a); T = T[–PAST]*



Now we must grapple with a more difficult question: What is the status of head movement? If it is an instance of generalized syntactic movement, the standard view, it will leave copies as shown in (i) above. Then we might say that pronominal Vocabulary like those in (41)–(42) can ‘see’ copies, so that SFs can be inserted in V2 subjects because their copies are in the specifier of finite T. But what if head movement is a (wholly or partially) post-syntactic operation (Chomsky 2001, Boeckx & Stjepanović 2001, Parrott 2001, Matushansky 2006)? Will morphological head movement still leave copies? If not, we might postulate that pronominal Vocabulary do not in fact refer to the finite T head itself, but only to the specifier position of finite T. I leave must leave the matter here, but see Parrott (2007: chap. 6, 2008) for a more elaborated discussion with regard to English pronouns and T-to-C

attitudes, will account for mismatched SFs in PhRCs (42b).

(43) *Structure of Danish PhRC (42a)*



Further empirical research on Danish pronoun case variation is currently underway, utilizing a large corpus of sociolinguistic interviews collected in several locations across Denmark from the 1970s to the present. The LANCHART corpus (Gregersen 2007, in press) will be first be searched for coordinated and post-copular pronouns, followed by PhRCs and other structures. The long-term goal is to code every pronoun for its syntactic context, making possible an exhaustive analysis of pronominal case-form distribution and variation in Danish. Initial results from the LANCHART corpora are reported in Hilton & Parrott (2009). We extracted 513 coordinated pronouns from a subsection of the corpus consisting of about 2.58 million ‘words’²⁶ (about 1 coordinated pronoun per 5000 ‘words’). Of these, 92 (about 18%) contained mismatched case forms, with all mismatch types attested (OF in a subject CoDP, SF in an object CoDP, mixed SFs/OFs in subject and object CoDPs). Extrapolating based on this sample, we estimate that around 1400 coordinated pronouns will be found in the entire LANCHART corpus (approximately 7 million ‘words’), with about 280 (20%) of these containing mismatches.

3.4. *Vestigial Case in Mainland Scandinavian and Beyond*

On the theory developed in this article, one possible prediction is that Norwegian and Swedish, the other mainland-Scandinavian vestigial-case languages, should also have pronominal case-form variation in CoDPs. However, this prediction is evidently much too strong: it is contradicted by the facts of Swedish and to some extent Norwegian. In general, it must be said that matters look quite a bit more complicated for Swedish and Norwegian than for Danish. The linguistic situation in Denmark could be described as mono-centric: regional dialect diversity has been reduced in favor of a supra-local ‘standard’ based on varieties spoken in the capital, Copenhagen. In contrast, Norway has not one but two official written standards (Bokmål and Nynorsk), along with a plethora of regional varieties whose use is typically sanctioned rather than stigmatized by popular and normative attitudes. Sweden also has a remarkable variety of regional dialects, in addition to Swedish varieties spoken in Finland. Adding to the complexity of this picture, certain varieties of both Norwegian and Swedish retain dative pronouns, or have (variable) syncretism of the SF/OF distinction for particular pronouns

raising in questions.

²⁶ ‘Words’ are defined as non-empty intervals, and thus include hesitation noises, false starts, repetitions, etc.

(Jørgensen 2000), for example Norwegian 3pl *de/dem* ‘they / them’ (Hilton 2009).

Keeping in mind these complicating factors, Swedish nevertheless looks quite unlike either Danish or English with respect to case variation. Thráinsson (2007: 185) reports that mismatched OFs in subject CoDPs are unattested and unacceptable. I have confirmed this with several native speakers of Swedish, including linguists and ‘laypeople.’ Moreover, both isolated and post-copular pronouns are invariantly SFs (Sigurðsson 2006, Thráinsson 2007). Thus at first glance, contrary to the morphological transparency hypothesis presented below, Swedish seems to behave like a transparent-case language. However, this conclusion cannot be maintained after a closer look. For one thing, unlike Icelandic, German, or other transparent-case languages, Swedish does not allow non-nominative finite-clause subjects. Moreover, there is at least one kind of case-form variation that may be unique to Swedish, yet seems unlike anything found in transparent-case languages. Holmberg (1986) reports that in one northern dialect, SFs occur variably as verbal and prepositional objects. To my knowledge, Holmberg provides the only English-language discussion and analysis of this phenomenon. Such a pattern of variation is not predicted to occur in a transparent-case language, and no such variation has been reported in one, to my knowledge.

Thus, it could be maintained that Swedish pronouns are allomorphs of structural context, but that their morphology is nonetheless different than Danish and English. As a very preliminary sketch, suppose that Swedish Vocabulary insert OF exponents when the pronoun is an object — say, when it is the complement of a head — and that SFs are elsewhere items inserted for pronouns in any other context. Important questions remain. Why is there no case-form variation in Swedish CoDPs? How did Swedish develop such a different pronominal morphology than Danish, a closely related language? More empirical research will be required to establish what patterns of case variation are (not) found in Swedish.

Turning to Norwegian, we find remarkable dialect diversity and (variable) case syncretisms, as noted above. However, unlike Swedish, the predicted mismatches in CoDPs have been attested in varieties of Norwegian.²⁷ Johannessen (1998, see also Schütze 2001: 226 for a summary and discussion) provides several examples from dialects spoken in Bergen, Stavanger, and Tromsø, but cites only older sources (Berntsen & Larsen 1925, Larsen & Stoltz 1912). On this basis (and presumably also as a native speaker), Johannessen concludes that when mismatched pronouns occur in CoDPs, either the first conjunct must be a SF, or both conjuncts must be OFs. In two corpora of sociolinguistic interviews conducted in Oslo and Hønefoss, consisting of one million ‘words’ in total, Hilton & Parrott (2009) report only three attestations of unambiguous pronominal case mismatch in CoDPs. Because none of these attestations have pronouns in both conjuncts, it

²⁷ According to Sigurðsson (2006), post-copular pronouns are OFs in “most varieties of Norwegian,” but in a footnote he seems to suggest that there is intra-individual, sociolinguistic variation: “[M]ost speakers can apply only the accusative [OF], while other speakers can apply either the everyday accusative [OF] or the more ‘conscious’ nominative [SF] (perhaps due to the influence of language planners)” (p. 15, fn. 16, of the pre-print manuscript from <http://person.sol.lu.se/HalldorSigurdsson/HS/TheNomAcc.pdf>). Unfortunately, Sigurðsson does not discuss case variation in Norwegian CoDPs.

is not possible to determine whether in fact they conform to Johannessen's alleged pattern. One example is given below.

- (44) *OF in subject CoDP* *Norwegian*
 [Meg og M.] er jo hva skal vi gjøre.
me and M. are like what should we do

Thus, from this incomplete and very preliminary inquiry, Norwegian apparently shows patterns of case variation that are similar to those found in both Danish and Swedish. It is not clear at this point whether the phenomena are limited to inter-individual variation between different Norwegian varieties, whether there is evidence of intra-individual variation with associated sociolinguistic attitudes, or both. Further empirical investigation will be required to resolve these and other outstanding questions.

Finally, pronominal case-form variation needs more empirical investigation in the remaining Germanic vestigial-case languages, namely Afrikaans, Dutch, and Frisian. According to Sigurðsson (2006), post-copular nominals are OFs in North Frisian, but SFs in Afrikaans, Dutch, and West Frisian. CoDPs in those languages are not discussed. If Sigurðsson's facts are correct, and if the analysis presented in this article is on the right track, then variable case-form mismatches would be predicted to occur in North Frisian CoDPs. In Afrikaans, Dutch, and West Frisian, we might expect to find patterns of case-form variation similar to Swedish, for example variably mismatched SF objects, as mentioned above (Holmberg 1986).

4. Case and the Acquisition of Vocabulary

Why are the morphological mechanisms of pronominal case-form allomorphy in English and Danish different from those in transparent case languages? Why can't English and Danish pronoun Vocabulary simply contain Case/case features, as in German (cf. (6)–(8) above)? Emonds's (1986) important insight is to explain both the inter- and intra-individual variation in Germanic case morphology with a principle of language acquisition.

4.1. *Morphological Transparency and the Acquisition of Vocabulary*

Simply put, Emonds hypothesized that the acquisition of morphosyntactic exponence is limited by what is phonologically distinctive in the child's environmental linguistic input. This basic idea is quite consistent with a Minimalist-DM theoretical architecture. Plausibly, Vocabulary items and all other objects and operations of the post-syntactic morphological PF interface component constitute the exclusive loci of inter-individual variation; it follows that patterns of intra-individual variation have the same loci. Such morphological objects or operations, the loci of all variation, are not provided by UG and therefore must be learned on the basis of perceptually distinctive linguistic stimuli. As Chomsky (1993: 3, emphasis mine — JKP) states:

Variation must be determined by what is ‘visible’ to the child acquiring language [...]. It is not surprising [...] to find a degree of variation in the PF component, and in aspects of the lexicon [...]. Variation in the overt syntax or LF component would be more problematic, since [acquisition] evidence could only be quite indirect. A narrow conjecture is that there is no such variation: [B]eyond PF options and lexical arbitrariness [...], **variation is limited to nonsubstantive parts of the lexicon and general properties of lexical items.**

Emonds (1986: 106f.) formalizes the notion that morphosyntactic features must be phonologically ‘visible’ for acquisition.

(45) *Morphological transparency*

Definition. A syntactic category C is “morphologically transparent” on B if and only if a productive number of pairs of simple B which contrast with respect to C also differ phonologically.

(46) *Morphological transparency as a constraint on acquisition* (Emonds 1986)

Morphological Transparency. An abstract (e.g., case) feature C of a category B is realized on the lexical head of B in a language if and only if the C is morphologically transparent on B.

Implementing Emonds’s Morphological Transparency hypothesis in DM yields the following.

(47) *Morphological transparency in DM*

A morphosyntactic feature F (e.g., [\pm inferior]) is morphologically transparent on an abstract terminal morpheme M (e.g., [D^0]) if and only if a productive number of pairs of simple M which contrast with respect to F also differ phonologically.

(48) *Transparency constraint on acquisition of morphology*

A morphological operation or object (e.g., Vocabulary item) that modifies M may contain a morphosyntactic feature F if and only if F is morphologically transparent on M.

Emonds’s formulation of the transparency hypothesis raises numerous questions, all of which cannot be resolved here. For instance, what definition of ‘productive’ is pertinent for transparency? Emonds in fact defines ‘productive’ in a footnote (1986: 106, fn. 6).

Productivity. A linguistic construction is ‘productive’ if the number of different forms that the construction may take is not limited by virtue of linguistic rules or principles. For example, the category ADJECTIVE is productive in English, but the category of TENSE endings on verbs is not.

Although the concept of productivity is somewhat intuitive, Emonds’s definition is not straightforward from the theoretical perspective adopted here. In DM

theory (Embick & Noyer 2007), the category 'adjective' consists of a root (i.e. 'lexical') morpheme with relevant semantic features that is adjoined to an adjectival categorizing morpheme during the morphosyntactic derivation. The category 'tense' consists of an abstract (i.e. 'functional') morpheme with semantic features such as [\pm PAST]. Although roots have inherent phonological feature content, abstract morphemes must be supplied with phonological features by post-syntactic Vocabulary insertion. It cannot be the case that all abstract morphemes are defined as non-productive, otherwise no feature could be morphologically transparent on any abstract morpheme. And indeed, the definite article (D[+DEFINITE]) is a primary locus of case exponence in German. Definite articles are a closed class (i.e. non-productive), and D is an abstract morpheme. But case features are clearly transparent on all German determiners. Intuitively, of course, productivity results when D is combined with open-class NPs. But this still leaves the question of how some 'number of pairs of simple' D could be productive for transparency.

Perhaps the problem here is not with productivity, but rather with 'pairs of simple' morphemes. Are only pair comparisons relevant for transparency? And must the pairs consist, for example, of simple Ds, or could they be pairs of DPs? It does seem clear that the threshold 'number of pairs' required for transparency is an empirical question to be settled by examining specific cases.²⁸ However, if a relevant category is productive, then there are, in principle, an infinite number of possible pair comparisons. Surely this means that when contrastive features are being compared for phonological distinctiveness, productivity will suffice to exceed the necessary threshold for transparency.

Whatever the precise answers turn out to be, a meager four contrastive SF/OF pairs among the closed set of pronouns clearly do not constitute an adequately "productive number of pairs" to make case features transparent on D in English. Nor do six contrastive pairs suffice for Danish. Thus, by hypothesis, no child with English or Danish as her environmental linguistic input will be able to acquire a morphological case system like that learned by her German or Faroese counterpart. She must learn a different morphological system that will account for the allomorphic distribution of pronominal case forms. As evidenced by variation and mismatch in CoDPs and other structures, a child exposed to English or Danish (and possibly varieties of Norwegian or Frisian) will acquire pronominal Vocabulary that are sensitive to structural context, such that SFs are the exponents of finite-subject pronouns and OFs are elsewhere items. Keeping to the transparency hypothesis, a child exposed to Swedish (and possibly Afrikaans, Dutch, or varieties of Frisian) also should not be able to acquire case features in her Vocabulary. However, it is not necessary that she acquire the same pronominal morphology as her Danish (and so on) counterpart. Evidently, SFs are the elsewhere pronoun exponents in Swedish. It remains to be discovered why this difference exists.

²⁸ This is not dissimilar to Lightfoot's (1999) idea that a child must be exposed to environmental structural 'cues' at some statistical threshold of frequency in order to set a parameter.

4.2. *A Pilot Study on Danish Child Language*

The morphological transparency hypothesis for case can be directly tested by observing children's production of pronominal case-forms in CoDPs and the entire range of syntactic structures discussed above and elsewhere (Schütze 2001, Grano 2006). The prediction is that young children acquiring a vestigial-case language like English will not use SF pronouns in post-copular nominals, nor in any CoDPs, even (and especially) in finite-clause subject CoDPs. Unfortunately, coordinated pronouns are evidently rare in child speech. But initial inquiry suggests that the prediction will be confirmed in Danish.

The following attestations of mismatched OFs in finite-subject CoDPs come from an article titled "7 days with Clara Suhr, 6 years old," which was published on 8 December 2000 in the Danish newspaper *Politiken*.²⁹ Of course, there is no way to be absolutely certain that these were actually uttered by the child or recorded accurately by the journalist. Even if they are not accurate, however, these examples would at least indicate that OFs in subject CoDPs are regarded as 'childish' usage.

- | | | |
|------|---|---------------|
| (49) | <i>OFs in finite-subject CoDPs</i> | <i>Danish</i> |
| a. | [Cille og mig] legede ved vandet.
<i>Cille and me played by water-the</i> | |
| b. | [Cille og mig] har næsten lige været med hende.
<i>Cille and me have almost just been with her</i> | |
| c. | [L. og L. og J. og M. og mig] lavede pigebord og fjollede.
<i>L. and L. and J. and M. and me made girl-table and fooled-around</i> | |
| d. | Nu skal [Cille og mig] se Pokémon
<i>now will Cille and me watch Pokémon</i> | |

I will now report the results of an observational pilot study of Petra,³⁰ a Danish child aged 3;1 years at the time of recording. Petra was recorded in conversations with her father and mother while working in the kitchen, eating a meal, playing with toys, and looking at photos. The parents were aware of the broad research objective and did attempt to elicit coordinated pronouns by asking Petra questions about photos and other topics.

First of all, it is important to observe that Petra consistently uses the 'correct' (i.e. adult-like) pronoun case-forms as the non-CoDP subjects of tensed clauses. This shows that Petra has already acquired pronominal allomorphy.

- | | | |
|------|--|---------------|
| (50) | Blev jeg også gift? ³¹
<i>get I also married</i> | <i>Danish</i> |
|------|--|---------------|

As predicted, Petra invariantly uses OFs as post-copular nominals. This is illustrated in (51) below; see the appendix below for additional tokens.

²⁹ "7 døgn med Clara Suhr, seks år," from 'Korpus 2000' (<http://korpus.dsl.dk>), collected with Jacob Thøgersen.

³⁰ This is a pseudonym.

³¹ For context, see (35a) above.

- (51) a. Det var **os**.
 it was us
 b. Det er **mig**!
 it is me

As predicted, she also uses OFs invariantly in post-copular CoDPs (52). Again, this shows that Petra has already acquired coordination. Notice that OFs occur in both first and second conjuncts.

- (52) a. Det var [**mig** og far].
 it was me and father
 b. Det' [min far og **mig**].³²
 it [is] my father and me

There is one example of Petra using an OF *os* 'us' as a demonstrative within a post-copular nominal phrase *os to* 'us two' (53).

- (53) Det er **os to**.
 it is us two

In one example, she uses an OF as an isolate pronoun, in response to a question formed from a post-copular nominal (see A3 in the Appendix).

- (54) Ja også **mig**.
 yes also me

Finally, in another example, Petra uses an OF in an isolate CoDP, in response to an object *wh*-question (see A17 in the Appendix).

- (55) [**Mig** og morfar].
 me and grandfather

Unfortunately, no attestations of the most crucial kind of mismatch — OFs in subject CoDPs — were recorded in this pilot study. But even though the results are not conclusive, they are still suggestive and completely consistent with the theory advocated in this article.

Future research on the acquisition of Danish pronominal case forms will utilize both observational and experimental methods. It may be possible to elicit coordinated pronouns, especially as finite subjects, with a number of different designs. For example, children might look at a picture book that depicts a family outing without text, and then explain to their parents what is happening. Additionally, children might be asked to talk about what they did with their friends at school.

³² The apostrophe transcribed here (*det'* *os*) indicates a phonologically reduced form of the Danish copula, where the /r/ of *er* or *var* is glottalized. This occurs not only in child language, but also in adult speech.

5. Concluding Remark

As mentioned above, the theory presented so far is compatible with the standard view that semantically uninterpretable abstract Case features are checked/valued in the narrow syntax (as in, e.g., Chomsky 2000 *et seq.*, Adger 2003, Hornstein *et al.* 2005), or with emerging proposals that case features are only assigned/realized in the post-syntactic morphological component (McFadden 2004, Sigurðsson 2009). Either way, the Case/case features must be mapped onto their phonological exponents: that is, the child must learn Vocabulary. However, if this story is at all on the right track, it would seem to favor a theory of post-syntactic case. If Case features are checked in the narrow syntax, then Case is endowed by UG and available to the child without any need for learning from environmental input. If that were the case, it is hard to see why anything like the transparency constraint would be operative. Even a small set of pronoun allomorphs ought to be sufficient to signal the correct mappings of phonological features to Case features. But if case features are only assigned/realized post-syntactically, say by morphological rules that refer to syntactic structures (McFadden 2004), then these rules too must be learned on the sole basis of environmental input and would thus be subject to transparency.

Appendix: Complete List of Tokens

The following comprise all Petra's tokens of coordinated, post-copular, and isolated pronouns extracted from an approximately one-hour-long recording. They are presented in order of occurrence, and with some discourse context. All the child's pronouns are in boldface font, and CoDPs are bracketed.

(A1) *OF as post-copular nominal*

Father: Hvem var det der gik ind i hulen?
who was it who went into in cave-the

Petra: Det' **os**.³³
it [was] us

(A2) *OF in post-copular CoDP*

Mother: Hvem var det?
who was it?

Petra: Det var [**mig** og far].
it was me and father

³³ See fn. 32 above.

(A3) *OF as isolate, from post-copular nominal*

- Mother:** Hvem var med på Christiania?
 who was with at Christiania
- Petra:** Det var far.
 it was father
 [...]
- Mother:** Og? Far og mor? Far? Var det bare mor og far?
 and father and mother father was it just mother and father
- Petra:** Ja også mig.
 yes also me

(A4) *OF as post-copular nominal*

- Father:** [in a funny voice] Hvem slukkede lyset?
 who turned-out light-the
- Petra:** Det er mig Barbarpappa. [...] Det var mig Barbarpappa.
 it is me Barbapappa it was me Barbapappa

(A5) *OF as post-copular nominal*

- Father:** Så spørger Barbarpappa hvem slukkede lyset?
 so asks Barbapappa who turned-out light-the
- Petra:** Det var os.
 it was us

(A6) *OF in post-copular CoDP*

- Father:** Hvem er os?
 who is us
- Petra:** Det er [far og mig].
 it is father and me

(A7) *OF as post-copular nominal*

- Father:** Hvem bor i hytten?
 who lives in cabin-the
- Petra:** Det er os. Det' os.³⁴
 it is us it [is] us

(A8) *OF in post-copular nominal*

- Father:** Hvem slukkede lyset?
 who turned-out light-the
- Petra:** Det er mig! [laughs] Det er mig!
 it is me it is me

³⁴ See fn. 32 above.

(A9) *OF as post-copular nominal*

Father: Hvem slukkede nu lyset?
who turned-out now light-the

Petra: Det er os.
it is us

(A10) *OF in post-copular CoDP*

Father: Hvem er os?
who is us

Petra: Det' [min far og mig].³⁵
it my father and me

(A11) *OF as post-copular nominal*

Father: Hvem tændte lyset?
who turned-on light-the

Petra: Det er mig, det var mig Barbapappa.
it is me it was me Barbapappa

(A12) *OF as a demonstrative in a post-copular nominal phrase*

Mother: Du var i zoologisk have, Petra, hvordan var det.
you_{SF} were in zoological garden Petra how was it

Petra: Det er os to.
it is us two

(A13) *OF as post-copular nominal*

Mother: Se der er en love.
see there is a lion

Petra: Det er os.
it is us

(A14) *OFs as post-copular nominals*

Mother: Hvem er så det der?
who is so it there

Petra: Det er mig.
it is me

Mother: Og hvem er du sammen med?
and who are you.SF together with

Petra: C.

Mother: Det er dig og K., og C. Hov! Hvem er det der [...]?
it is you and K. and C. hey who is it there

Petra: Det er mig.
it is me

³⁵ See fn. 32 above.

(A15) *OF as post-copular nominal*

Father: Hvem er det der sidder og smiler?
 who is that there sitting and smiling

Petra: Det er mig.
 it is me

(A16) *OF as post-copular nominal*

Mother: Se Petra, hvem er det?
 see Petra who is it

Petra: Ja, det er mig.
 yes it is me

(A17) *OF in isolate CoDP*

Father: Hvem er det man kan se på det der billede?
 who is it one can see in that there picture

Petra: [Mig og morfar].
 me and grandfather

(A18) *OF as post-copular nominal*

Father: Hvem er det der spiser is.
 who is that there eats ice-cream

Petra: Det' os.³⁶
 it [is] us

(A19) *OF in post-copular CoDP*

Father: (Skal vi lige) kigge på det der?
 shall we just look at it there

Petra: Det er [mig og M].
 it is me and M.

(A20) *OF as post-copular nominal*

Father: Hvem var det!
 who was it

Petra: Det var mig.
 it was me

³⁶ See fn. 32 above.

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